

Figure 1 Continued

Amino acid sequence for LF mature peptide (missing the signal sequence)

```
1 agghgdvgmh vkekeknkde nkrkdeernk tqeehlkeim khivkievkg eeavkkeaae
61 kllekvpsdv lemykaiggk iyivdgditk hislealsed kkkikdiygk dallhehyvy
121 akegyepvlv iqssedyven tekalnvyve igkilsrdil skinqpyqkf ldvltikna
181 sdsdgqdlf tnqlkehptd fsvefleqns nevqevfaka fayyiepqhr dvlqlyapea
241 fnymdkfneq einlsleelk dqrmlsryek wekikqhyqh wsdslseegr gllkklqipi
301 epkkddihs lsqeeekellk riqidssdf1 steekeflkk lqidirdsls eeekellnri
361 qvdssnplse kekeflkklk ldiqpyding rlqdtggld spsinldvrk qykrdiqnid
421 allhqsigt lynkiylyen mninnltatl gadlvdstdn tkinrgifne fknfkysis
481 snymivdine rpaldnerlk wriqlspdtr agylengkli lqrnigleik dvqiikqsek
541 eyiridakvv pkskidtkiq eaqlningew nkalglpkyt klitfnvhnr yasnivesay
601 lilnewknni qsdlikkvtn ylvdgngfrv ftditlpnia eqythqdeiy eqvhskglyv
661 pesrsillhg pskgvelrnd segfihefgh avddyagyll dknqsdlvt n skkfifidke
721 egsnltsygr tneaeffaea frlmhstdha erlkvqknap ktfqfindqi kfiins
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Amino acid sequence for LF4 (amino acids 9-252 from above sequence)

```
9 mh vkekeknkde nkrkdeernk tqeehlkeim khivkievkg eeavkkeaae
61 kllekvpsdv lemykaiggk iyivdgditk hislealsed kkkikdiygk dallhehyvy
121 akegyepvlv iqssedyven tekalnvyve igkilsrdil skinqpyqkf ldvltikna
181 sdsdgqdlf tnqlkehptd fsvefleqns nevqevfaka fayyiepqhr dvlqlyapea
241 fnymdkfneq ei
```

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Figure 1

LF native DNA sequence

```

1 atgaatataa aaaaagaatt tataaaagta attagtatgt catgtttagt aacagcaatt
61 acttttgagt gtcccgcttt tatccccctt gtacaggggg cgggcgggtca tggatgatga
121 ggtatgcacg taaaagagaa agagaaaaat aaagatgaga ataagagaaa agatgaagaa
181 cgaaataaaa cacaggaaga gcattttaaag gaaatcatga aacacattgt aaaaatagaa
241 gtaaaagggg aggaagctgt taaaaaaagag gcagcagaaa agctacttga gaaagtacca
301 tctgatgttt tagagatgta taaagcaatt ggaggaaaaga tatatatattgt ggatgggtgat
361 attacaaaac atatatcttt agaagcatta tctgaagata agaaaaaaat aaaagacatt
421 tatgggaaag atgctttatt acatgaacat tatgtatatg caaaagaagg atatgaaccg
481 gtacttgtaa tccaatcttc ggaagattat gtagaaaata ctgaaaaggc actgaacgtt
541 tattatgaaa taggtaagat attatcaagg gatattttta gtaaaattaa tcaaccatat
601 cagaaatttt tagatgtatt aaataccatt aaaaatgcat ctgattcaga tggacaagat
661 cttttattta ctaatcagct taaggaacat cccacagact tttctgtaga attcttgtaa
721 caaaatagca atgaggtaca agaagtattt gcgaaagctt ttgcatatta tatcgagcca
781 cagcatcgtg atgttttaca gctttatgca ccggaagctt ttaattacat ggataaattt
841 aacgaacaag aaataaatct atccttggaa gaacttaaag atcaacggat gctgtcaaga
901 tatgaaaaat gggaaaagat aaaacagcac tatcaacact ggagcgattc tttatctgaa
961 gaaggaagag gactttttaa aaagctgcag attcctattg agccaaagaa agatgacata
1021 attcattctt tatctcaaga agaaaaagag cttctaaaaa gaatacaaat tgatagtagt
1081 gattttttat ctactgagga aaaagagttt ttaaaaaagc taaaaattga tattcgtagt
1141 tctttatctg aagaagaaaa agagctttta aatagaatac aggtggatag tagtaatcct
1201 ttatctgaaa aagaaaaaga gtttttaaaa aagctgaaac ttgatattca accatatgat
1261 attaatcaaa ggttgcaaga tacaggaggg ttaattgata gtccgtcaat taatcttgat
1321 gtaagaaagc agtataaaag ggatattcaa aatattgatg ctttattaca tcaatccatt
1381 ggaagtacct tgtacaataa aatttatattg tatgaaaata tgaatatcaa taaccttaca
1441 gcaaccctag gtgcggattt agttgattcc actgataata ctaaaattaa tagaggattt
1501 ttcaatgaat tcaaaaaaaa tttcaaatat agtatttcta gtaactatat gattggtgat
1561 ataaatgaaa ggcctgcatt agataatgag cgtttgaaat ggagaatcca attatcacca
1621 gatactcgag caggatattt agaaaatgga aagcttatat taaaaagaaa catcgggtctg
1681 gaaataaagg atgtacaaat aattaagcaa tccgaaaaag aatatataag gattgatgag
1741 aaagtagtgc caaagagtaa aatagataca aaaattcaag aagcacagtt aaatataaat
1801 caggaatgga ataaagcatt agggttacca aaatatacaa agcttattac attcaacgtg
1861 cataatagat atgcatccaa tattgtagaa agtgcttatt taatattgaa tgaatggaaa
1921 aataatattc aaagtgatct tataaaaaag gtaacaaatt acttagttga tggtaatgga
1981 agatttggtt ttaccgatat tactctccct aatatagctg aacaatatac acatcaagat
2041 gagatatatg agcaagttca ttcaaaaggg ttatatgttc cagaatcccg ttctatatta
2101 ctccatggac cttcaaaagg tgtagaatta aggaatgata gtgaggggtt tatacacgaa
2161 tttggacatg ctgtggatga ttatgctgga tatctattag ataagaacca atctgattta
2221 gttacaaatt ctaaaaaatt cattgatatt ttttaaggaa aagggagtaa ttttaacttcg
2281 tatgggagaa caaatgaagc ggaatttttt gcagaagcct ttaggttaat gcattctacg
2341 gaccatgctg aacgttttaa agttcaaaaa aatgctccga aaactttcca atttattaac
2401 gatcagatta agttcattat taactcataa

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Coding sequence: 1-2430

Signal peptide: 1-99

Mature peptide: 100-2430

LF4 peptide: 124-855

Figure 2

PA native DNA sequence

ORIGIN

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1 atgaaaaaac gaaaagtgtt aataccatta atggcattgt ctacgatatt agtttcaagc
61 acaggtaatt tagaggatgat tcaggcagaa gttaaacagg agaaccggtt attaaatgaa
121 tcagaatcaa gttcccaggg gttactagga tactatttta gtgatttgaa ttttcaagca
181 cccatggtgg ttacctcttc tactacaggg gatttatcta ttcctagttc tgagttagaa
241 aatattccat cggaaaacca atattttcaa tctgctatct ggtcaggatt tatcaaagtt
301 aagaagagtg atgaatatac atttgctact tccgctgata atcatgtaac aatgtgggta
361 gatgaccaag aagtgattaa taaagcttct aattctaaca aaatcagatt agaaaaagga
421 agatttatatc aaataaaaat tcaatatcaa cgagaaaatc ctactgaaaa aggattggat
481 ttcaagttgt actggaccga ttctcaaaat aaaaaagaag tgatttctag tgataactta
541 caattgccag aattaaaaca aaaatcttcg aactcaagaa aaaagcgaag tacaagtgct
601 ggacctacgg ttccagaccg tgacaatgat ggaatccctg attcattaga ggtagaagga
661 tatacggttg atgtcaaaaa taaaagaact tttctttcac catggatttc taatattcat
721 gaaaagaaag gattaaccaa atataaatca tctcctgaaa aatggagcac ggcttctgat
781 ccgtacagtg atttcgaaaa ggttacagga cggattgata agaatgtatc accagaggca
841 agacaccccc ttgtggcagc ttatccgatt gtacatgtag atatggagaa tattattctc
901 tcaaaaaatg aggatcaatc cacacagaat actgatagtg aaacgagAAC aataagtaaa
961 aatacttcta caagtaggac acatactagt gaagtacatg gaaatgcaga agtgcattcg
1021 tcgttctttg atattgggtg gagtgtatct gcaggattta gtaattcgaa ttcaagtacg
1081 gtcgcaattg atcattcact atctctagca ggggaaagaa cttgggctga aacaatgggt
1141 ttaaataccg ctgatacagc aagattaaat gccaatatta gatatgtaaa tactgggacg
1201 gtcaccaatc acaacgtgtt accaacgact tcgttagtgt taggaaaaaa tcaaacactc
1261 gcgacaatta aagctaagga aaaccaatta agtcaaatac ttgcacctaa taattattat
1321 ccttctaaaa acttggcgcc aatcgcatTA aatgcacaag acgatttcag ttctactcca
1381 attacaatga attacaatca atttcttgag ttagaaaaaa cgaaacaatt aagattagat
1441 acggatcaag tatatgggaa tatagcaaca tacaattttg aaaaatggaag agtgagggtg
1501 gatacaggct cgaactggag tgaagtgtta ccgcaaattc aagaaacaac tgcacgtatc
1561 atttttaagt gaaaagattt aaatctggta gaaaggcgga tagcggcggt taatcctagt
1621 gatccattag aaacgactaa accggatatg acattaaaag aagcccttaa aatagcattt
1681 ggatttaacg aaccgaatgg aaacttacia tatcaaggga aagacataac cgaatttgat
1741 tttaatttcg atcaacaaac atctcaaaat atcaagaatc agttagcgga attaaacgca
1801 actaacatat atactgtatt agataaaaatc aaattaaatg caaaaatgaa tattttaata
1861 agagataaac gttttcatta tgatagaaat aacatagcag ttggggcgga tgagtcagta
1921 gttaaggagg ctcatagaga agtaattaat tcgtcaacag agggattatt gttaaataat
1981 gataaggata taagaaaaat attatcaggt tatattgtag aaattgaaga tactgaaggg
2041 cttaaagaag ttataaatga cagatatgat atgttgaata tttctagttt acggcaagat
2101 ggaaaaacat ttatagattt taaaaaatat aatgataaat taccgttata tataagtaat
2161 cccaattata aggtaaatgt atatgctgtt actaaagaaa acactattat taatcctagt
2221 gagaatgggg atactagtac caacgggatc aagaaaattt taatcttttc taaaaaaggc
2281 tatgagatag gataaa

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Coding sequence: 1-2295

Signal peptide: 1-87

Mature peptide: 88-2295

pCPA: 610-2295

Figure 2 continued

Amino acid sequence for PA mature peptide (missing the signal sequence)

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1 evkqenrlln esesssggll gyyfsdlnfq apmvvtsstt gdlsipssel enipsenqyf
61 qsaiwsgfik vkksdeytfa tsadnhvtmw vddqevinka snsnnkirlek grlyqikiqy
121 qrenptekgl dfklywtdsq nkkevissdn lqlpelkqks snsrkkrrsts agptvpdrdn
181 dgipdsleve gytvdvknkr tflspwisni hekkgltskyk sspekwwstas dpysdfekvt
241 gridknvspe arhplvaayp ivhvdmenii lsknedqstq ntdsetrtis kntstsrtht
301 sevhgnaevh asffdiggs v sagfsnsnss tvaidhsll agertwaetm glntadtarl
361 naniryvntg tapiynvlpt tslvlgknqt latikakenq lsqilapnny ypsknlapia
421 lnaqddfsst pitmnynqfl elektkqlrl dtdqvygnia tynfengrvr vdtgsnwsev
481 lpqiqettar iifngkdlnl verriaavnp sdplettkpd mtlkealkia fgfnepngnl
541 qyqgkditef dfnfdqqtst nknqlaeln atniyvtldk iklnakmnll irdkrfhydr
601 nniavgades vvkeahrevi nsstegllln idkdirkils gyiveiedte glkevindry
661 dmlnisslrq dgktfidfkk yndklplyis npnykvnvya vtkentiinp sengdtstng
721 ikkilifskk gyeig

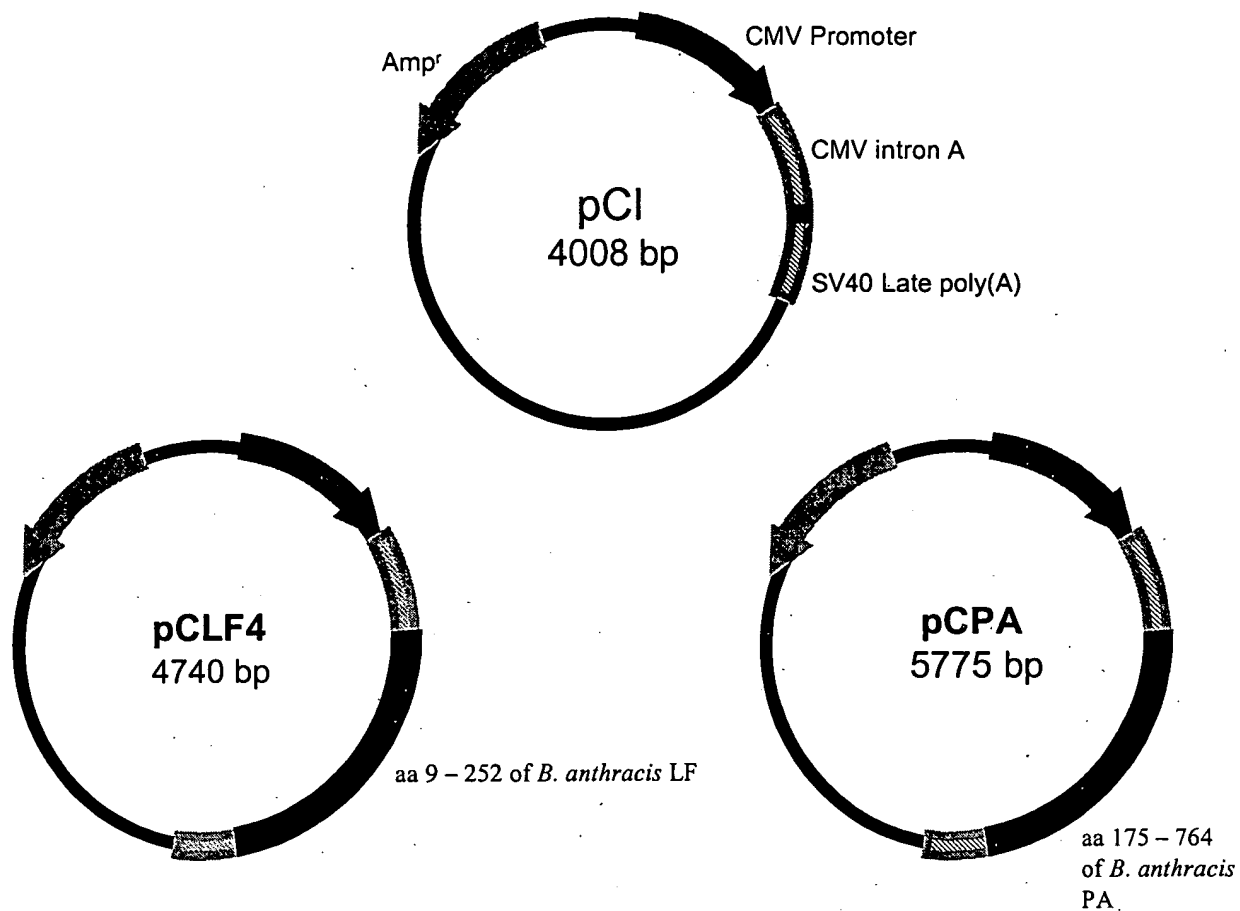
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Amino acid sequence for pCPA (amino acids 175-735 from above sequence)

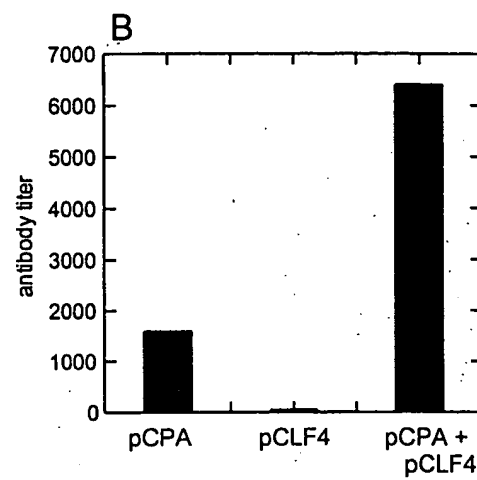
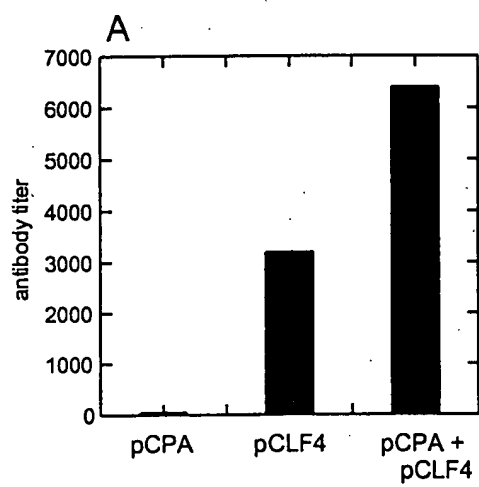
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175                                     vpdrdn
181 dgipdsleve gytvdvknkr tflspwisni hekkgltskyk sspekwwstas dpysdfekvt
241 gridknvspe arhplvaayp ivhvdmenii lsknedqstq ntdsetrtis kntstsrtht
301 sevhgnaevh asffdiggs v sagfsnsnss tvaidhsll agertwaetm glntadtarl
361 naniryvntg tapiynvlpt tslvlgknqt latikakenq lsqilapnny ypsknlapia
421 lnaqddfsst pitmnynqfl elektkqlrl dtdqvygnia tynfengrvr vdtgsnwsev
481 lpqiqettar iifngkdlnl verriaavnp sdplettkpd mtlkealkia fgfnepngnl
541 qyqgkditef dfnfdqqtst nknqlaeln atniyvtldk iklnakmnll irdkrfhydr
601 nniavgades vvkeahrevi nsstegllln idkdirkils gyiveiedte glkevindry
661 dmlnisslrq dgktfidfkk yndklplyis npnykvnvya vtkentiinp sengdtstng
721 ikkilifskk gyeig

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**Fig. 3**



**Fig. 4**

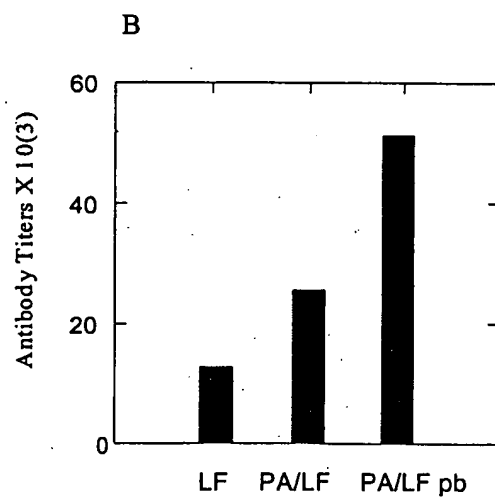
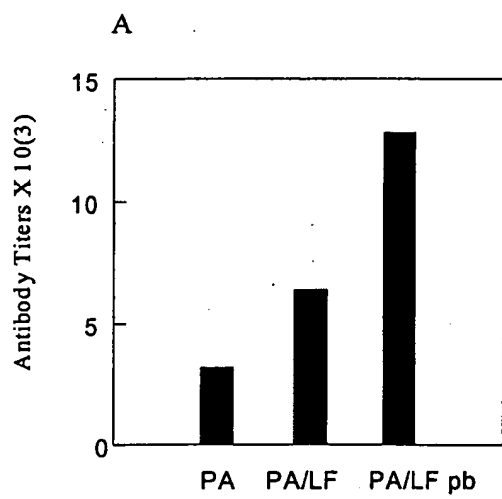
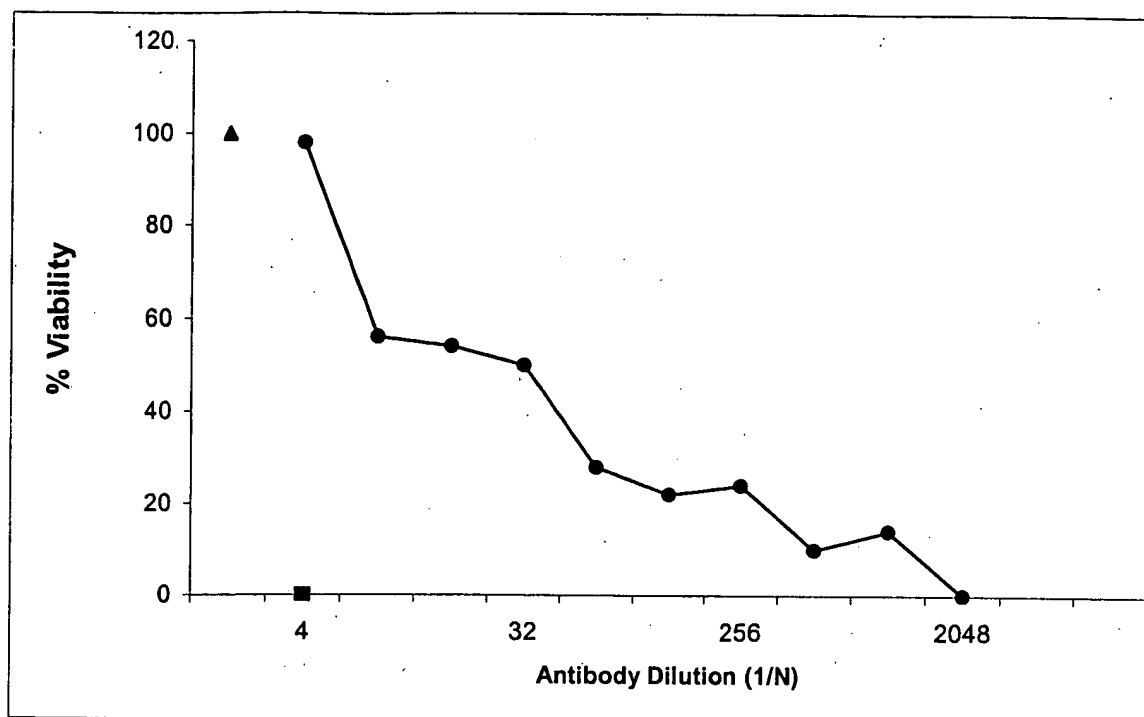


Fig. 5



**Fig. 6**